



Victoria Shanghai Academy

Year 6 (MYP 1)  
Mathematics  
Decimals

(Suggested Solutions)

Name: \_\_\_\_\_

Class: \_\_\_\_\_ (    )

# Decimal fractions – tenths, hundredths and thousandths

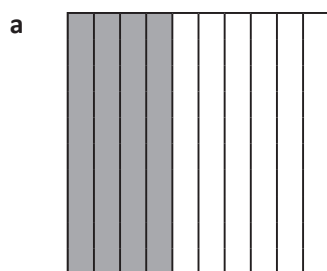
Common fractions and decimal fractions are related as they both show parts of a whole. In common fractions, we divide a whole into parts such as halves or sixths.

In decimal fractions, the whole is partitioned using the base 10 system – into tenths, then hundredths, then thousandths and so on.

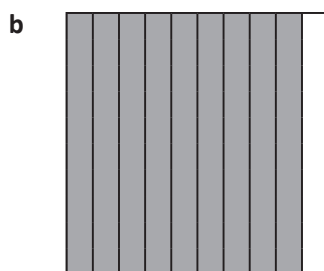
We use a decimal point after the unit to indicate the end of whole numbers: 6.42

If the number has no whole numbers, we use a zero to make sure we don't miss the decimal point: 0.42

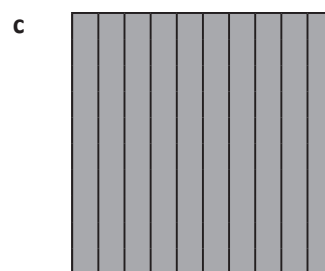
**1 Divide these wholes into tenths and shade the specified amounts. Write each as a decimal fraction:**



$$\frac{4}{10} \quad \boxed{0 \mid 4}$$

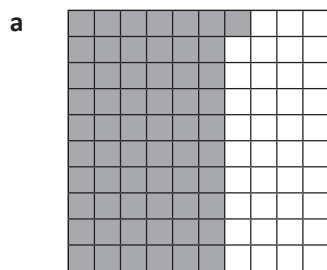


$$\frac{9}{10} \quad \boxed{0 \mid 9}$$

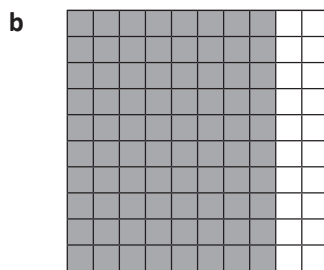


$$\frac{10}{10} \quad \boxed{1 \mid 0}$$

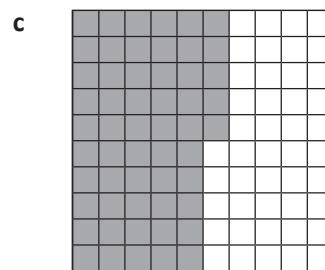
**2 Now divide these wholes into hundredths and shade the specified amounts. Write each as a decimal fraction:**



$$\frac{61}{100} \quad \boxed{0 \mid 6 \mid 1}$$



$$\frac{80}{100} \quad \boxed{0 \mid 8 \mid 0}$$



$$\frac{55}{100} \quad \boxed{0 \mid 5 \mid 5}$$

**3 Express these as decimal fractions:**

**a** 6 tenths, 7 hundredths, 4 thousandths

$$\boxed{0 \mid 6 \mid 7 \mid 4}$$

**b**  $\frac{432}{1000}$

$$\boxed{0 \mid 4 \mid 3 \mid 2}$$

**c** 4 tenths, 9 hundredths, 3 thousandths

$$\boxed{0 \mid 4 \mid 9 \mid 3}$$

**d**  $\frac{589}{1000}$

$$\boxed{0 \mid 5 \mid 8 \mid 9}$$

**e** 0 tenths, 2 hundredths, 9 thousandths

$$\boxed{0 \mid 0 \mid 2 \mid 9}$$

**f**  $\frac{7}{1000}$

$$\boxed{0 \mid 0 \mid 0 \mid 7}$$

**g** 4 thousandths

$$\boxed{0 \mid 0 \mid 0 \mid 4}$$

**h**  $\frac{1000}{1000}$

$$\boxed{1 \mid 0 \mid 0 \mid 0}$$

# Decimal fractions – reading and writing decimals

When we write decimals we follow this place order:

Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
			2	2	5	6

Numbers **before** the decimal point are whole numbers.

Numbers **after** the decimal point are parts of a whole number.

The further the digit is to the left in the number, the greater its value. The further it is to the right, the smaller its value.

- 1 What is the value of the digit in **bold**?  
Tick the correct column:

	Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
a 5. <b>8</b> 92					•	✓	
b 13. <b>0</b> 5					•	✓	
c <b>7</b> 63.22		✓			•		
d 89. <b>0</b> 21				✓	•		
e 100. <b>0</b> 01					•		✓
f 560. <b>4</b> 5					•	✓	
g 312. <b>9</b> 56			✓		•		

- 2 Read each number and write it as a decimal:

- a four units, one hundred and twenty two thousandths 4.122
- b one hundred and eleven, and sixty five hundredths 111.65
- c three hundred, and forty two thousandths 300.042
- d four thousand, and twelve hundredths 4000.12
- e twelve, and 13 thousandths 12.013
- f two hundred and thirteen, and forty-three hundredths 213.43

Watch out for the commas!  
They indicate the end of whole numbers.



- 3 These answers are all close but incorrect. Write the correct answers:

- |   |                              |              |
|---|------------------------------|--------------|
| a twenty seven tenths is written as 0.27        | No it's not, it's written as | <u>2.7</u>   |
| b forty eight hundredths is written as 0.048    | No it's not, it's written as | <u>0.48</u>  |
| c 9000 thousandths is written as 0.009          | No it's not, it's written as | <u>9.0</u>   |
| d eleven and 12 hundredths is written as 11.012 | No it's not, it's written as | <u>11.12</u> |
| e 167 hundredths is written as 16.7             | No it's not, it's written as | <u>1.67</u>  |

## Decimal fractions – comparing and ordering decimals

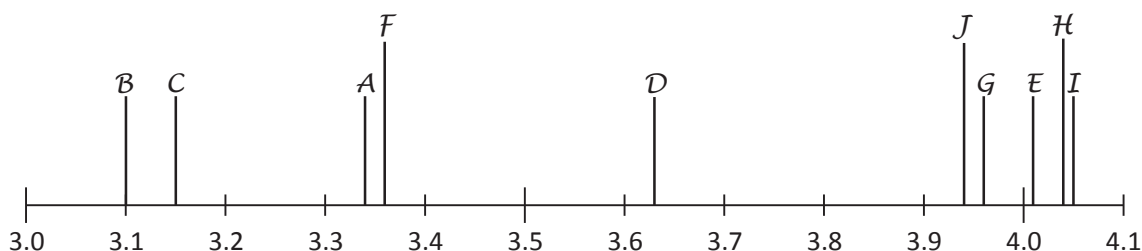
We need to carefully consider the place value of digits when ordering and comparing decimals.



	Name	Distance
<b>A</b>	Spitter Macgee	3.34 m
<b>B</b>	Did You See That One Big-noter	3.1 m
<b>C</b>	Secret-ingredient Spitski	3.15 m
<b>D</b>	Dead-eye Jones	3.63 m
<b>E</b>	The Long Distance Shooter	4.01 m
<b>F</b>	Sally Straw	3.36 m
<b>G</b>	Technique Tezza	3.96 m
<b>H</b>	Lone Shooter	4.04 m
<b>I</b>	Double Or Nothing Danielle	4.05 m
<b>J</b>	Shoot Dog	3.94 m

- 1 6A has a very cool teacher who decides to harness, not ban, the class' current obsession with pea shooting. After a week of intense training, a shoot-off occurs. The results for the top ten shooters are tabled on the right.

Place the students on the number line. The first one has been done for you.



- 2 Use the above information to answer the following questions:

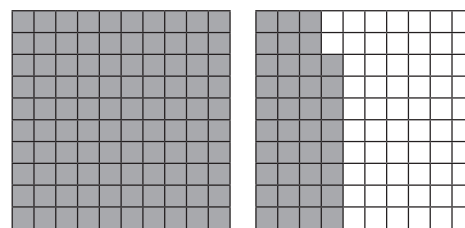
- a Who shot the furthest on the day? Double Or Nothing Danielle
- b Whose shot was the shortest? Did You See That One Big-noter
- c Which students' shots were 1 hundredth of a metre apart?  
Lone Shooter and Double Or Nothing Danielle
- d What was the difference between the shots of Shoot Dog and Spitter Macgee? 0.6 m
- e Do you think you could beat this? Something to try at home perhaps? Even 6A's teacher eventually had enough of the pea shooting.

Answers will vary.

# Decimal fractions – renaming decimals

We can express the same decimal fraction in different ways.  
This shows 138 hundredths.

We can also express this as 1 unit, 3 tenths and 8 hundredths  
**or** 13 tenths and 8 hundredths **or** 1 unit and 38 hundredths.



## 1 Rename these fractions:

- a 37 hundredths is also  tenths +  hundredths
- b 53 hundredths is also  tenths +  hundredths
- c 99 hundredths is also  tenths +  hundredths
- d 6 tenths and 3 hundredths is also  hundredths
- e 4 tenths and 9 hundredths is also  hundredths
- f 4 tenths, 9 hundredths and 8 thousandths is also  thousandths
- g 0 tenths, 5 hundredths and 8 thousandths is also  thousandths

It may help to write these numbers in their decimal forms.

## 2 Now try these. Fill in the missing information:

- a 4 units = 40 tenths = 400 hundredths = 4 000 thousandths
- b 7 units = 70 tenths = 700 hundredths = 7 000 thousandths
- c 2.5 units = 25 tenths = 250 hundredths = 2 500 thousandths
- d 9 units = 90 tenths = 900 hundredths = 9 000 thousandths



**THINK**

## 3 Rename these numbers as many ways as you can. Use the abbreviation: H for hundredths, T for tenths and U for units:

5.67	2.52	9.81
<u>5 U 67 H</u>	<u>2 U 52 H</u>	<u>9 U 81 H</u>
<u>5 U 6 T 7 H</u>	<u>2 U 5 T 2 H</u>	<u>9 U 8 T 1 H</u>
<u>56 T 7 H</u>	<u>25 T 2 H</u>	<u>98 T 1 H</u>
<u>567 H</u>	<u>252 H</u>	<u>981 H</u>

# Decimal fractions – rounding

We often round decimals to a particular place value. We do this to make the numbers easier to work with.

Look at 2.685. We can round this to the nearest whole number, tenth or hundredth.

Let's round it to the nearest tenth. To do this, we look at the number in the hundredths place.

This is 8, which is closer to 10 than 1, so we round the tenth up. The rounded number is now 2.7

## 1 Round these numbers to the nearest tenth:

a 67.23 67.2

b 48.07 48.1

c 124.78 124.8

d 90.14 90.1

e 54.53 54.5

f 7.06 7.1

If the rounding number is a 1 to 4, it rounds down.  
If it is 5 to 9, it rounds up.



**REMEMBER**

## 2 Now round these numbers to the nearest hundredth:

a 58.127 58.13

b 70.345 70.35

c 45.007 45.01

d 78.134 78.13

e 89.036 89.04

f 36.231 36.23

## 3 Use a calculator to perform the following operations. Round the answers to the nearest tenth:

a  $132.4 \div 5 =$  26.5

b  $178 \div 8 =$  22.3

c  $125.3 \div 4 =$  31.3

d  $223 \div 4 =$  55.8

e  $12 \div 7 =$  1.7

f  $123.52 \div 4 =$  30.9

## 4 Look at the following meal options.

a Round each price to the nearest dollar and total the estimated cost of each option below:

Choice 1		
Hamburger	\$4.95	\$5
Can of drink	\$2.25	\$2
Large chips	\$1.15	\$1
Total		\$8

Choice 2		
Noodles with prawns	\$7.95	\$8
Green tea	\$0.95	\$1
3 Crab cakes	\$2.98	\$3
Total		\$12

Choice 3		
Salad roll	\$5.15	\$5
Juice	\$2.25	\$2
Cookie	\$1.95	\$2
Total		\$9

b You have \$10. Circle the choices you can afford.

EXERCISE 9A

PLACE VALUE TABLES

a

Number	thousands	hundreds	tens	units		tenths	hundredths	thousandths	Written Numeral
$\frac{8}{10} + \frac{3}{100}$				0	.	8	3		0.83

b

Number	thousands	hundreds	tens	units		tenths	hundredths	thousandths	Written Numeral
$4 + \frac{1}{10} + \frac{2}{100} + \frac{8}{1000}$				4	.	1	2	8	4.128

c

Number	thousands	hundreds	tens	units		tenths	hundredths	thousandths	Written Numeral
$9 + \frac{4}{1000}$				9	.	0	0	4	9.004

d

Number	thousands	hundreds	tens	units		tenths	hundredths	thousandths	Written Numeral
$\frac{5}{100} + \frac{6}{1000}$				0	.	0	5	6	0.056

e

Number	thousands	hundreds	tens	units		tenths	hundredths	thousandths	Written Numeral
$28 + \frac{6}{10} + \frac{9}{100} + \frac{9}{1000}$			2	8	.	6	9	9	28.699

Number	thousands	hundreds	tens	units		tenths	hundredths	thousandths	Written Numeral
$139 + \frac{7}{100} + \frac{7}{1000}$		1	3	9	.	0	7	7	139.077

f

## Place value table

### Common mistakes (Year 6)

#### Circle the mistakes and write the correct answers

3050.057 – Three thousand and ~~fofty~~ seven ~~thouanth~~s

Correct answer: (Three thousand, fifty and fifty-seven thousandths.)

4070.107 – four ~~zero seven zero one zero seven~~

Correct answer: (Four thousand, seventy and one hundred and seven thousandths.)

2050.509 – two ~~zero five zero five zero seven~~

Correct answer: (Two thousand, fifty and five hundred and nine thousandths.)

3040.057 – three ~~thousands~~ and ~~fifty~~ and fifty ~~svenen~~ thousandths

Correct answer: (Three thousand, forty and fifty-seven thousandths.)

2050.509 – two thousands and ~~fifty~~ and five ~~hunder~~ and nine

Correct answer: (Two thousand fifty and five hundred nine thousandths.)

2040.201 – two thousand and ~~fourty~~ and two ~~hunder~~ and one ~~thousanth~~s

Correct answer: (Two thousand, forty and two hundred and one thousandths.)

1031.301 – one thousand and ~~trity~~ one and three ~~hunder~~ and one thousandths

Correct answer: (One thousand, thirty-one and three hundred and one thousandths.)

2050.509 – two thousand and ~~fity~~ five ~~hundreds~~ and nine thousands

Correct answer: (Two thousand, fifty and five hundred and nine thousandths.)

1030.052 – one thousand and thirty and ~~fify tow thousand-~~

1030.052 – one thousand and thirty and ~~fifty~~ two thousandths

Correct answer: (One thousand thirty and fifty-two thousandths.)

3050.057 – three ~~thsnds nd fivety~~ and ~~fivety~~-seven thousandths

Correct answer: (Three thousand, fifty and fifty-seven thousandths.)

800.038 – eight ~~hungreds~~ and ~~threethy~~-eight thousandths

Correct answer: (Eight hundred and thirty-eight thousandths.)

13.908 – thirteen and nine ~~hundreths~~ and eight thousandths

Correct answer: (Thirteen and nine hundred and eight thousandths.)

20.708 – twenty and seven ~~hundredth~~ and eight thousandths

Correct answer: (Twenty, and seven hundred and eight thousandths.)



## 2.4 Approximations

### Exercise 2E

1. Express the following decimals correct to 2 decimal places.
  - a.  $4.834 \approx 4.83$
  - b.  $1.641 \approx 1.64$
  - c.  $6.978 \approx 6.98$
  - d.  $2.887 \approx 2.89$
  - e.  $14.055 \approx 14.06$
  - f.  $28.065 \approx 28.07$
  - g.  $4.8319 \approx 4.83$
  - h.  $17.0413 \approx 17.04$
  - i.  $0.98932 \approx 0.99$
  - j.  $0.27642 \approx 0.28$
2. Round off the following decimals to the number of decimal places indicated in the brackets.
  - a.  $4.87 (1) \approx 4.9$
  - b.  $12.843 (2) \approx 12.84$
  - c.  $0.0475 (3) \approx 0.048$
  - d.  $0.9408 (3) \approx 0.941$
  - e.  $3.863 (1) \approx 3.9$
  - f.  $24.938 (1) \approx 24.9$
  - g.  $7.9327 (2) \approx 7.93$
  - h.  $14.833 (2) \approx 14.83$
3. Find the decimal values of the following fractions correct to 3 decimal places.
  - a.  $\frac{1}{9} \approx 0.111$
  - b.  $\frac{1}{6} \approx 0.167$
  - c.  $\frac{1}{7} \approx 0.143$
  - d.  $\frac{1}{11} \approx 0.091$
  - e.  $\frac{1}{15} \approx 0.067$
  - f.  $\frac{1}{12} \approx 0.083$
  - g.  $\frac{1}{22} \approx 0.045$
  - h.  $\frac{1}{41} \approx 0.024$
  - i.  $\frac{1}{105} \approx 0.010$
4. Calculate the following correct to 3 decimal places.
  - a.  $0.47 \div 0.3$   
 $= 47 \div 30$   
 $\approx 1.567$
  - b.  $0.83 \div 0.6$   
 $= 83 \div 60$   
 $\approx 1.383$
  - c.  $0.068 \div 0.07$   
 $= 68 \div 70$   
 $\approx 0.971$
  - d.  $0.082 \div 0.03$   
 $= 82 \div 30$   
 $\approx 2.733$
  - e.  $0.53 \div 0.006$   
 $= 530 \div 6$   
 $\approx 88.333$
  - f.  $0.29 \div 0.007$   
 $= 290 \div 7$   
 $\approx 41.429$
  - g.  $3.61 \div 1.1$   
 $= 36.1 \div 11$   
 $\approx 3.282$
  - h.  $7.58 \div 1.2$   
 $= 75.8 \div 12$   
 $\approx 6.317$
  - i.  $6.56 \div 0.09$   
 $= 656 \div 9$   
 $\approx 72.889$
  - j.  $7.91 \div 0.09$   
 $= 791 \div 9$   
 $\approx 87.889$
5. Round off 1 638.5 to the nearest
  - a.  $1\ 638.5 \approx 1639$  (whole number)
  - b.  $1\ 638.5 \approx 1640$  (ten)
  - c.  $1\ 638.5 \approx 1600$  (hundred)
  - d.  $1\ 638.5 \approx 2000$  (thousand)
6. Round off the following
  - i. 73.0645
    - a.  $\approx 73.1$  (to 1 decimal place)
    - b.  $\approx 73$  (to the nearest whole number)
    - c.  $\approx 70$  (to the nearest ten)
  - ii. 17.0413
    - a.  $\approx 17.0$  (to 1 decimal place)
    - b.  $\approx 17$  (to the nearest whole number)
    - c.  $\approx 20$  (to the nearest ten)
  - iii. 7.0842
    - a.  $\approx 7.1$  (to 1 decimal place)
    - b.  $\approx 7$  (to the nearest whole number)
    - c.  $\approx 10$  (to the nearest ten)
  - iv. 6.79
    - a.  $\approx 6.8$  (to 1 decimal place)
    - b.  $\approx 7$  (to the nearest whole number)
    - c.  $\approx 10$  (to the nearest ten)
  - v. 24.938
    - a.  $\approx 24.9$  (to 1 decimal place)
    - b.  $\approx 25$  (to the nearest whole number)
    - c.  $\approx 20$  (to the nearest ten)
  - vi. 34.983
    - a.  $\approx 35.0$  (to 1 decimal place)
    - b.  $\approx 35$  (to the nearest whole number)
    - c.  $\approx 30$  (to the nearest ten)
  - vii. 104.86
    - a.  $\approx 104.9$  (to 1 decimal place)
    - b.  $\approx 105$  (to the nearest whole number)
    - c.  $\approx 100$  (to the nearest ten)
  - viii. 213.57
    - a.  $\approx 213.6$  (to 1 decimal place)
    - b.  $\approx 214$  (to the nearest whole number)
    - c.  $\approx 210$  (to the nearest ten)
  - ix. 199.54
    - a.  $\approx 199.5$  (to 1 decimal place)
    - b.  $\approx 200$  (to the nearest whole number)
    - c.  $\approx 200$  (to the nearest ten)
  - x. 299.66
    - a.  $\approx 299.7$  (to 1 decimal place)
    - b.  $\approx 300$  (to the nearest whole number)
    - c.  $\approx 300$  (to the nearest ten)

7. Round off the following

- i. 0.76 cm  
 $a. \approx 0.8 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 1 \text{ cm}$  (to the nearest cm)
- ii. 1.27 cm  
 $a. \approx 1.3 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 1 \text{ cm}$  (to the nearest cm)
- iii. 12.34 cm  
 $a. \approx 12.3 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 12 \text{ cm}$  (to the nearest cm)
- iv. 45.67 cm  
 $a. \approx 45.7 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 46 \text{ cm}$  (to the nearest cm)

- v. 89.01 cm  
 $a. \approx 89.0 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 89 \text{ cm}$  (to the nearest cm)
- vi. 90.12 cm  
 $a. \approx 90.1 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 90 \text{ cm}$  (to the nearest cm)
- vii. 112.35 cm  
 $a. \approx 112.4 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 112 \text{ cm}$  (to the nearest cm)
- viii. 358.01 cm  
 $a. \approx 358.0 \text{ cm}$  (to 1 decimal place)  
 $b. \approx 358 \text{ cm}$  (to the nearest cm)

8. Round off the following

- i. 112 g  
 $a. \approx 110 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 100 \text{ g}$  (to the nearest 100g)
- ii. 123 g  
 $a. \approx 120 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 100 \text{ g}$  (to the nearest 100g)
- iii. 235 g  
 $a. \approx 240 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 200 \text{ g}$  (to the nearest 100g)
- iv. 358 g  
 $a. \approx 360 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 400 \text{ g}$  (to the nearest 100g)

- v. 5813 g  
 $a. \approx 5810 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 5800 \text{ g}$  (to the nearest 100g)
- vi. 81321 g  
 $a. \approx 81320 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 81300 \text{ g}$  (to the nearest 100g)
- vii. 1304 g  
 $a. \approx 1300 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 1400 \text{ g}$  (to the nearest 100g)
- viii. 2001 g  
 $a. \approx 2000 \text{ g}$  (to the nearest 10 g)  
 $b. \approx 2000 \text{ g}$  (to the nearest 100g)

9. Express 0.085714 correct to 3 decimal places. [N/96/P1]

$0.085714 \approx 0.086$  (correct to 3 decimal places)

10. The attendance at a football match was 23 749. Write 23 749 correct to the nearest hundred. [N/02/P1]

$23\,749 \approx 23\,700$  (correct to the nearest hundred)

11. Express 776 813 correct to the nearest thousand. [N/03/P1]

$776\,813 \approx 777\,000$  (correct to the nearest thousand)

## Exercise 2F

1. Express the following numbers correct to 3 significant figures.
  - (a) 2 732
  - (b) 3 059
  - (c) 0.012 43
  - (d) 0.031 58
  - (e) 42 617
  - (f) 86 279
  - (g) 239 821
  - (h) 1 097 288
  - (i) 0.007 008 3
  - (j) 0.000 496 81
2. The population of France in 2006 was 63 587 700. Give this answer correct to:
  - (a) 3 significant figures,
  - (b) 2 significant figures.
3. Express the following correct to 2 significant figures.
  - (a) 0.048 62 [N/98/P1]
  - (b) 0.030 69 [N/99/P1]
  - (c) 13 784 [N/00/P1]
  - (d) 0.077 6 [N/04/P1]
4. The attendance at a football match was 14 725. Write 14 725 correct to
  - (a) the nearest thousand,
  - (b) 3 significant figures. [N/97/P1]
5. Find the decimal values (correct to 3 significant figures) of the following.
 

(a) $\frac{1}{2.51}$	(b) $\frac{1}{1.62}$
(c) $\frac{1}{1.55}$	(d) $\frac{1}{2.47}$
(e) $\frac{1}{0.55}$	(f) $\frac{1}{0.82}$

### Exercise 2F (Answer)

- 1a)  $2\,732 \approx 2\,730$  (correct to 3 s.f.)
- 1b)  $3\,059 \approx 3\,060$  (correct to 3 s.f.)
- 1c)  $0.012\,43 \approx 0.012\,4$  (correct to 3 s.f.)
- 1d)  $0.031\,58 \approx 0.031\,6$  (correct to 3 s.f.)
- 1e)  $42\,617 \approx 42\,600$  (correct to 3 s.f.)
- 1f)  $86\,279 \approx 86\,300$  (correct to 3 s.f.)
- 1g)  $239\,821 \approx 240\,000$  (correct to 3 s.f.)
- 1h)  $1\,097\,288 \approx 1\,100\,000$  (correct to 3 s.f.)
- 1i)  $0.007\,008\,3 \approx 0.007\,01$  (correct to 3 s.f.)
- 1j)  $0.000\,496\,81 \approx 0.000\,497$  (correct to 3 s.f.)

2a) Population of France in 2006 was 63 600 000 (correct to 3 s.f.)

2b) Population of France in 2006 was 64 000 000 (correct to 2 s.f.)

3a)  $0.048\,62 \approx 0.049$  (correct to 2 s.f.)

3b)  $0.030\,69 \approx 0.031$  (correct to 2 s.f.)

3c)  $13\,784 \approx 14\,000$  (correct to 2 s.f.)

3d)  $0.077\,6 \approx 0.078$  (correct to 2 s.f.)

4a)  $14\,725 \approx 15\,000$  (correct to the nearest thousand)

4b)  $14\,725 \approx 14\,700$  (correct to 3 s.f.)

5a)  $\frac{1}{2.51} = 1 \div 2.51 = 100 \div 251 \approx 0.3984 \dots \approx 0.398$  (correct to 3 s.f.)

5b)  $\frac{1}{1.62} = 1 \div 1.62 = 100 \div 162 \approx 0.6172 \dots \approx 0.617$  (correct to 3 s.f.)

5c)  $\frac{1}{1.55} = 1 \div 1.55 = 100 \div 155 \approx 0.64516 \dots \approx 0.645$  (correct to 3 s.f.)

5d)  $\frac{1}{2.47} = 1 \div 2.47 = 100 \div 247 \approx 0.40485 \dots \approx 0.405$  (correct to 3 s.f.)

5e)  $\frac{1}{0.55} = 1 \div 0.55 = 100 \div 55 \approx 1.81818 \dots \approx 1.82$  (correct to 3 s.f.)

5f)  $\frac{1}{0.82} = 1 \div 0.82 = 100 \div 82 \approx 1.2195 \dots \approx 1.22$  (correct to 3 s.f.)

## Revision on Decimals

1.  $3.56 + 6.7 = 10.26$
2.  $4.7 - 1.9 = 2.8$
3.  $7.9 + 9.81 = 17.71$
4.  $9.87 - 5.89 = 3.98$
5.  $2.5 \times 6 = 15$
6.  $9.8 \times 1.23 = 12.054$
7.  $2.2 + 6.9 = 9.1$
8.  $80.1 - 2.9 = 77.2$
9.  $3.3 \times 5.5 = 18.15$
10.  $2.99 + 6.15 = 9.14$

$$\begin{array}{r} 3.56 \\ + 6.70 \\ \hline 10.26 \end{array}$$

$$\begin{array}{r} 4.7 \\ - 1.9 \\ \hline 2.8 \end{array}$$

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$$\begin{array}{r} 7.90 \\ + 9.81 \\ \hline 17.71 \end{array}$$

$$\begin{array}{r} 9.87 \\ - 5.89 \\ \hline 3.98 \end{array}$$

$$\begin{array}{r} 2.5 \\ \times 6 \\ \hline 15.0 \end{array}$$

$$\begin{array}{r} 1.23 \\ \times 9.8 \\ \hline 11070 \\ 984 \\ \hline 12.054 \end{array}$$

$$\begin{array}{r} 2.2 \\ + 6.9 \\ \hline 9.1 \end{array}$$

$$\begin{array}{r} 80.1 \\ - 2.9 \\ \hline 77.2 \end{array}$$

$$\begin{array}{r} 3.3 \\ \times 5.5 \\ \hline 1650 \\ 165 \\ \hline 18.15 \end{array}$$

$$\begin{array}{r} 2.99 \\ + 6.15 \\ \hline 9.14 \end{array}$$

## Division of decimals – Exercise 1

1.  $15.6 \div 4 = 3.9$
2.  $6.3 \div 7 = 0.9$
3.  $6.6 \div 5 = 1.32$
4.  $36 \div 50 = 0.72$
5.  $100 \div 40 = 2.5$
6.  $1 \div 20 = 0.05$
7. Mum spent \$37.20 on 3 kg of sweets. How much did each kilogram of sweets cost?  
 $37.2 \div 3 = 12.4$
8. Lily divided 1.8 L of ice cream into 12 cups equally. How many litres of ice cream did each cup contain?  
 $1.8 \div 12 = 0.15$
9. 5 pencils can be bought with \$4. How much does each pencil cost?  
 $4 \div 5 = 0.8$
10. 32 dumplings weigh 328g. How much grams does each dumpling weigh on average?  
 $328 \div 32 = 10.25$

① $15.6 \div 4$ $= 3.9$	$\begin{array}{r} 3.9 \\ 4 \overline{)15.6} \\ \underline{12} \phantom{00} \\ 36 \\ \underline{36} \\ 0 \end{array}$	② $6.3 \div 7$ $= 0.9$	$\begin{array}{r} 0.9 \\ 7 \overline{)6.3} \\ \underline{63} \\ 0 \end{array}$
③ $6.6 \div 5$ $= 1.32$	$\begin{array}{r} 1.32 \\ 5 \overline{)6.6} \\ \underline{5} \phantom{00} \\ 16 \\ \underline{15} \\ 10 \end{array}$	④ $36 \div 50$ $= 0.72$	$\begin{array}{r} 0.72 \\ 50 \overline{)360} \\ \underline{350} \phantom{00} \\ 100 \\ \underline{100} \\ 0 \end{array}$
⑤ $100 \div 40$ $= 2.5$	$\begin{array}{r} 2.5 \\ 40 \overline{)100} \\ \underline{80} \phantom{00} \\ 200 \\ \underline{200} \\ 0 \end{array}$	⑥ $1 \div 20$ $= 0.05$	$\begin{array}{r} 0.05 \\ 20 \overline{)100} \\ \underline{100} \\ 0 \end{array}$
⑦ $37.2 \div 3$ $= 12.4$ Each kg of sweets costs \$12.4	$\begin{array}{r} 12.4 \\ 3 \overline{)37.2} \\ \underline{36} \phantom{00} \\ 12 \\ \underline{12} \\ 0 \end{array}$	⑧ $1.8 \div 12$ $= 0.15$ Each cup contains 0.15 L of ice cream	$\begin{array}{r} 0.15 \\ 12 \overline{)1.8} \\ \underline{12} \\ 0 \end{array}$
⑨ $4 \div 5$ $= 0.8$ Each pencil costs \$0.8	$\begin{array}{r} 0.8 \\ 5 \overline{)40} \\ \underline{40} \\ 0 \end{array}$	⑩ $328 \div 32$ $= 10.25$ Each dumpling weighs 10.25 g on average	$\begin{array}{r} 10.25 \\ 32 \overline{)328} \\ \underline{32} \phantom{00} \\ 80 \\ \underline{64} \phantom{00} \\ 160 \\ \underline{160} \\ 0 \end{array}$



### Division of decimals – Exercise 3

For Q1 to Q4, round off the answers to the nearest tenth.

1.  $0.4 \div 2.3 \approx 0.2$     2.  $3.33 \div 1.1 \approx 3.0$     3.  $30 \div 7 \approx 4.3$     4.  $1 \div 6 \approx 0.2$
5. Kevin has \$2.70. If he divides the amount into groups of \$0.50, how many groups are there? How much money has he left?
6. Each picture card costs \$4.50. If Kate has \$40, how many picture cards can he buy? How much money has she left?
7. A toy car costs \$48.50. If Kevin saves \$3.50 each day, how many days does he need to save enough money to buy the toy car? After buying it, how much money has he left?
8. David has a stick that is 5.65m long. If he divides it into sections of 0.25m, how many sections are there? How many metres of the stick has he left over?
9. If Tom divides 10.5kg of sugar into packets of 0.45kg, how many packets of sugar are there? How many kilograms of sugar has he left over?

<p>① <math>0.4 \div 2.3</math>  <math>= 4 \div 23</math>  <math>\approx 0.17</math>  <math>\approx 0.2</math> (nearest tenth)</p>	<p>② <math>3.33 \div 1.1</math>  <math>= 33.3 \div 11</math>  <math>\approx 3.02</math>  <math>\approx 3.0</math> (nearest tenth)</p>	<p>③ <math>30 \div 7</math>  <math>\approx 4.28</math>  <math>\approx 4.3</math> (nearest tenth)</p>
<p>④ <math>1 \div 6</math>  <math>\approx 0.16</math>  <math>\approx 0.2</math> (nearest tenth)</p>	<p>⑤ <math>2.7 \div 0.5</math>  <math>= 27 \div 5</math>  <math>= 5 \text{ R } 2</math>  <math>\approx 5.4</math>          There are 5 groups of \$0.50.          \$0.2 has left.</p>	<p>⑥ <math>40 \div 4.5</math>  <math>= 400 \div 45</math>  <math>= 8 \text{ R } 4</math>          He can buy 8 picture cards.          \$4 has left.</p>
<p>⑦ <math>48.5 \div 3.5</math>  <math>= 485 \div 35</math>  <math>= 13 \text{ days } \dots \\$3</math>  <math>14 \times 3.5 = 49</math>  <math>= 49 - 48.5 = 0.5</math>          He need to save for 14 days and          \$0.5 left after buying the toy car.</p>	<p>⑧ <math>5.65 \div 0.25</math>  <math>= 565 \div 25</math>  <math>= 22 \dots 0.15</math>          There are 22 sections          and 0.15 m has left.</p>	<p>⑨ <math>10.5 \div 0.45</math>  <math>= 1050 \div 45</math>  <math>= 23 \text{ R } 0.15</math>          There are 23 packets of          sugar and 0.15 kg has          left over.</p>

## Division of decimals – Exercise 4

- 3 packets of steak weigh 12.6 kg. How many kilograms do 7 packets of steak weigh?
- There are 80 bottles of honey. Each bottle contains 0.5 L of honey. If we pour the honey into jars of 1.25 L, how many jars of honey are there?
- 0.8 kg of fish balls can be bought with 48.60. If Mum buys 3.6 kg, how much should she pay?
- There are 4 packets of pork chops. Each packet weighs 1.75 kg. They are put into 20 boxes equally. How many kilograms of pork chops does each box contain?
- A dozen chicken wings cost \$43.20. If Mum buys 8 chicken wings, how much should she pay?
- The price of 3.2 kg of melons is the same as the price of 5 kg of pumpkins. If each kilogram of pumpkins costs 44.80, how much does each kilogram of melons cost?
- Jenny spent \$34.40 on a fish which weighed 0.8 kg. David bought a fish which weighed 0.6 kg. How much did David pay?

$$\textcircled{1} \quad 12.6 \div 3 \times 7$$

$$= 29.4$$

7 packets of  
steak weigh 29.4 kg

$$\begin{array}{r} 4.2 \\ 3 \overline{) 12.6} \\ \underline{12} \phantom{6} \\ 6 \phantom{6} \\ \underline{6} \phantom{6} \\ 0 \phantom{6} \end{array}$$

$$\begin{array}{r} 4.2 \\ \times 7 \\ \hline 29.4 \end{array}$$

$$\textcircled{2} \quad 0.5 \times 80 \div 1.25$$

$$= 40 \div 1.25$$

$$= 4000 \div 125$$

$$= 32$$

There are 32 jars  
of honey

$$\begin{array}{r} 80 \\ \times 0.5 \\ \hline 400 \end{array}$$

$$\begin{array}{r} 32 \\ 125 \overline{) 4000} \\ \underline{375} \phantom{00} \\ 250 \phantom{0} \\ \underline{250} \phantom{0} \\ 0 \phantom{0} \end{array}$$

$$\textcircled{3} \quad 48.60 \div 0.8 \times 3.6$$

$$= 486 \div 8 \times 3.6$$

$$= 218.7$$

She should pay  
\$218.7

$$\begin{array}{r} 60.75 \\ 8 \overline{) 486} \\ \underline{48} \phantom{0} \\ 60 \phantom{0} \\ \underline{56} \phantom{0} \\ 40 \phantom{0} \\ \underline{40} \phantom{0} \\ 0 \phantom{0} \end{array}$$

$$\begin{array}{r} 60.75 \\ \times 3.6 \\ \hline 36450 \\ 182250 \\ \hline 218700 \end{array}$$

$$\textcircled{4} \quad 1.75 \times 4 \div 20$$

$$= 7 \div 20$$

$$= 0.35$$

Each box contain  
0.35 kg of pork chops

$$\begin{array}{r} 1.75 \\ \times 4 \\ \hline 7.00 \\ \hline 0.35 \\ 20 \overline{) 7} \\ \underline{60} \phantom{00} \\ 100 \phantom{00} \end{array}$$

$$\textcircled{5} \quad 43.2 \div 12 \times 8$$

$$= 3.6 \times 8$$

$$= 28.8$$

She should pay  
\$28.8

$$\begin{array}{r} 3.6 \\ 12 \overline{) 43.2} \\ \underline{36} \phantom{00} \\ 72 \phantom{00} \\ \underline{72} \phantom{00} \\ 0 \phantom{00} \end{array}$$

$$\begin{array}{r} 3.6 \\ \times 8 \\ \hline 28.8 \end{array}$$

$$\textcircled{6} \quad 44.8 \times 5 \div 3.2$$

$$= 224 \div 3.2$$

$$= 2240 \div 32$$

$$= 70$$

Each kg of melons  
cost \$70

$$\begin{array}{r} 44.8 \\ \times 5 \\ \hline 224.0 \end{array}$$

$$\begin{array}{r} 70 \\ 32 \overline{) 2240} \\ \underline{224} \phantom{00} \\ 0 \phantom{00} \end{array}$$

$$\textcircled{7} \quad 34.4 \div 0.8 \times 0.6$$

$$= 344 \div 8 \times 0.6$$

$$= 43 \times 0.6$$

$$= 25.8$$

David paid \$25.8

$$\begin{array}{r} 43 \\ 8 \overline{) 344} \\ \underline{32} \phantom{00} \\ 24 \phantom{00} \\ \underline{24} \phantom{00} \\ 0 \phantom{00} \end{array}$$

$$\begin{array}{r} 43 \\ \times 0.6 \\ \hline 25.8 \end{array}$$



# Mixed operations of decimals – Exercise 5

1.  $7.8 + 3.7 \times 2.9 =$       2.  $12.6 - 17.6 \div 2.2$       3.  $1.8 + 10.3 \times 0.5 - 2.38$

4.  $3.6 \times 8 - 5.4 \div 5$

5. Kate had \$87.40. After spending \$12.50 each day for 3 days, she donated the remaining money to charity. How much money did she donate?

6. Each can of apple juice cost \$4.80. Kevin bought 6 cans of apple juice. He has \$2.30 left. How much money did he have originally?

7. A hawker bought some oranges at \$1.20 each. He sold them at \$10 for 4 oranges. If Mrs Cheung bought a dozen oranges, how much did the hawker earn?

8. The capacity of a can of green tea is 0.34 L. The capacity of a can of lemon tea is the same as that of the green tea. Each can of green tea costs \$7. Each can of lemon tea costs \$6.20. How much more expensive is 1 L of green tea than 1 L of lemon tea? (Round off the answer to the nearest tenth.)

①  $7.8 + 3.7 \times 2.9$   
 $= 7.8 + 10.73$   
 $= \underline{18.53}$

$3.7$   
 $\times 2.9$   
 $\hline$   
 $740$   
 $233$   
 $\hline$   
 $10.73$   
 $+ 7.80$   
 $\hline$   
 $18.53$

②  $12.6 - 17.6 \div 2.2$   
 $= 12.6 - 176 \div 22$   
 $= 12.6 - 8$   
 $= \underline{4.6}$

$8$   
 $22 \overline{)176}$   
 $\underline{176}$   
 $\hline$   
 $12.6$   
 $- 8.0$   
 $\hline$   
 $4.6$

③  $1.8 + 10.3 \times 0.5 - 2.38$   
 $= 1.8 + 5.15 - 2.38$   
 $= \underline{4.57}$

$10.3$   
 $\times 0.5$   
 $\hline$   
 $5.15$   
 $+ 1.8$   
 $\hline$   
 $6.95$   
 $- 2.38$   
 $\hline$   
 $4.57$

④  $3.6 \times 8 - 5.4 \div 5$   
 $= 28.8 - 1.08$   
 $= \underline{27.72}$

$1.08$   
 $5 \overline{)5.40}$   
 $\underline{5}$   
 $\hline$   
 $40$   
 $\underline{40}$   
 $\hline$   
 $28.8$   
 $- 1.08$   
 $\hline$   
 $27.72$

⑤  $87.40 - 12.50 \times 3$   
 $= 87.40 - 37.50$   
 $= \underline{49.90}$

Kate donated  
\$49.90 to the  
charity

⑥  $4.8 \times 6 + 2.3$   
 $= 28.8 + 2.3$   
 $= \underline{31.1}$

Kevin had \$31.10  
originally

⑦  $(10 \div 4 - 1.2) \times 12$   
 $= 1.3 \times 12$   
 $= \underline{15.6}$

The hawker earned  
\$15.60

⑧  $(7 - 6.2) \div 0.34$   
 $= 0.8 \div 0.34$   
 $\approx \underline{2.35}$

$\approx 2.4$  (round off to  
nearest tenth)  
1L of green tea is  
\$2.40 more expensive  
than 1L of lemon tea.